The following Listing of the Claims will replace all prior versions and all prior listings of the claims in the present application:

Listing of The Claims:

1-45. (Cancelled)

1 ~~46.~~ (Previously presented) A method of identifying an agent that binds to GPR86, said method comprising:

(a) contacting a GPR86 polypeptide having the sequence of SEQ ID NO:2 with a compound selected from the group consisting of ADP, 2MeSADP and ADPbetaS in the presence or absence of a candidate binding agent under conditions permitting binding of said compound to said GPR86 polypeptide; and

(b) measuring binding of said compound to said GPR86 polypeptide, wherein a decrease in binding in the presence of said candidate binding agent, relative to binding in the absence of said candidate binding agent, identifies said candidate binding agent as an agent that binds to GPR86.

2 ~~47.~~ (Currently amended) A method of detecting in a sample the presence of an agent that binds to GPR86, said method comprising:

(a) contacting a GPR86 polypeptide having the sequence of SEQ ID NO:2 with a compound selected from the group consisting of ADP, 2MeSADP and ADPbetaS in the presence or absence of said sample under conditions permitting binding of said compound to said GPR86 polypeptide; and

(b) measuring binding of said compound to said GPR86 polypeptide, wherein a decrease in binding in the presence of said sample, relative to binding in the absence of said sample, indicates the presence, in said sample of an agent that binds to GPR86.

3 ~~48.~~ (Previously presented) A method of identifying an agonist that increases the signaling of GPR86 having the sequence of SEQ ID NO:2 , said method comprising:

(a) contacting a GPR86 polypeptide with a candidate modulator;

(b) measuring a signaling activity of said GPR86 polypeptide in the presence of said candidate modulator; and

(c) comparing said activity measured in the presence of said candidate modulator to said activity measured in a reaction in which said GPR86 polypeptide is contacted with a compound selected from the group consisting of ADP, 2MeSADP and ADPbetaS, wherein said candidate modulator is identified as an agonist that increases the signaling of GPR86 when the amount of said activity measured in the presence of said candidate modulator is at least 10% of the amount induced by said compound.

4 ~~49.~~ (Previously presented) A method of detecting in a sample the presence of an agent that increases the signaling of GPR86 having the sequence of SEQ ID NO:2 , said method comprising:

(a) contacting a GPR86 polypeptide with said sample;

(b) measuring a signaling activity of said GPR86 polypeptide in the presence of said sample; and

(c) comparing said activity measured in the presence of said sample to said activity measured in a reaction in which said GPR86 polypeptide is contacted with a compound selected from the group consisting of ADP, 2MeSADP and ADPbetaS, wherein an agonist that increases the signaling of GPR86 is detected if the amount of said activity measured in the presence of said sample is at least 10% of the amount induced by said compound.

5 ~~50.~~ (Previously presented) A method of identifying an agent that decreases the signaling activity of GPR86 having the sequence of SEQ ID NO:2 , said method comprising:

(a) contacting a GPR86 polypeptide with a compound selected from the group consisting of ADP, 2MeSADP and ADPbetaS in the presence or absence of said agent;

(b) measuring a signaling activity of said GPR86 polypeptide; and

(c) comparing the amount of said activity measured in a reaction containing GPR86 and said compound without said agent to the amount of said activity measured in a reaction containing GPR86, said compound and said agent, wherein a decrease in said activity in the presence of said agent relative to the activity in the absence of said agent indicates that this agent is an antagonist for GPR86.

6 ~~51~~. (Previously presented) A method of detecting in a sample the presence of an agent that decreases the signaling activity of GPR86 having the sequence of SEQ ID NO:2 , said method comprising:

(a) contacting a GPR86 polypeptide with a compound selected from the group consisting of ADP, 2MeSADP and ADPbetaS in the presence or absence of said sample;

(b) measuring a signaling activity of said GPR86 polypeptide; and

(c) comparing the amount of said activity measured in a reaction containing GPR86 and said compound without said sample to the amount of said activity measured in a reaction containing GPR86, said compound and said sample, wherein a decrease in said activity in the presence of said sample relative to the activity in the absence of said sample indicates the presence, in said sample, of an antagonist for GPR86.

7 ~~52~~. (Previously presented) The method according to any of claims ~~46~~ 1 to ~~51~~ 6 wherein said GPR86 having the sequence of SEQ ID NO:2 is expressed by cells.

8 ~~53~~. (Previously presented) The method according to any of claims ~~46~~ 1 to ~~51~~ 6 wherein said GPR86 having the sequence of SEQ ID NO:2 is present in cell membranes.

9 ~~54~~. (Previously presented) The method according to any of claims ~~46~~ 1 to ~~51~~ 6, wherein said GPR86 having the sequence of SEQ ID NO:2 is present in or on virus-induced budding membranes.

55. (Previously presented) The method according to claims 52 and 53 wherein said cells are selected from the group consisting of: COS7-cells, a CHO cell, a LM (TK-) cell, a NIH-3T3 cell, HEK-293 cell, K-562 cell and an 1321N1 astrocytoma cell.

11 ~~56~~. (Previously presented) The method according to any of claims ~~46~~ 1 to ~~51~~ 6, further performed in the presence of Gα16 polypeptide.

12 ~~57~~. (Previously presented) The method according to any of claims ~~46~~ 1 to ~~51~~ 6 wherein said measuring or said detecting is performed using a method selected from label displacement, surface plasmon resonance, fluorescence resonance energy transfer, fluorescence quenching, and fluorescence polarization.

13 ~~58~~. (Previously presented) The method according to any of claims ~~46~~ 1 to ~~51~~ 6 wherein said detecting or measuring a signaling activity or measuring the binding of said GPR86 polypeptide comprises detecting a change in the level of a second messenger.

14 ~~59~~. (Previously presented) The method according to any of claims ~~46~~ 1 to ~~51~~ 6 wherein the step of detecting a signaling activity or said measuring a signaling activity or measuring the binding comprises measurement of guanine nucleotide binding or exchange, adenylate cyclase activity, cAMP, protein kinase C activity, phosphatidylinositol breakdown, diacylglycerol, inositol triphosphate, intracellular calcium, arachinoid acid concentration, MAP kinase activity, tyrosine kinase activity, reporter gene expression.

15 ~~60~~. (Previously presented) The method of claim ~~59~~ 14 wherein said measuring a signaling activity comprises using an aequorin-based assay.